WHAT IS CLAIMED IS:

1. An automatic fire sprinkler having a variable orifice, the sprinkler comprising a variable orifice associated with the automatic fire sprinkler, said orifice being responsive to a water inlet pressure of the sprinkler.

2. The automatic fire sprinkler of claim 1, wherein a flow-rate of water through the sprinkler is characterized by a formula:

$$Q = K*(p)^{1/2}$$

wherein Q is said flow-rate of water through the sprinkler, p is said water inlet pressure, and K is a coefficient dependent upon a geometry of the sprinkler, K further being a function of said pressure p, and wherein said variable orifice is designed and configured to change a cross-sectional area of a water flow-path of the sprinkler as a function of said water pressure within said flow-path.

3. The automatic fire sprinkler of claim 2, wherein said function is substantially linear.

4. The automatic fire sprinkler of claim 2, wherein said function is substantially parabolic.

5. The automatic fire sprinkler of claim 2, wherein said function is substantially exponential.

6. A variable orifice insert for providing a pressure dependent flow in a sprinkler of an automatic fire protection system, the insert comprising a flow-impeding element disposed within the automatic fire protection system and associated with the sprinkler, so as to decrease a cross-sectional area of a water flow-path of the sprinkler as a function of water pressure within said flow-path.

7. The variable orifice insert of claim 6, wherein said water flow-path is a specific water flow-path.

8. The variable orifice insert of claim 6, wherein the insert further comprises a housing installed in said water flow-path ahead of the sprinkler, said housing for housing said flow-impeding element and for operatively connecting the sprinkler to the automatic fire protection system.

9. The variable orifice insert of claim 8, wherein said flow-impeding element includes a flexible diaphragm, said diaphragm being attached to said housing.

10. The variable orifice insert of claim 9, said flow-impeding element further including a damping mechanism for damping movement of said diaphragm, said damping mechanism responsive to water pressure.

11. The variable orifice insert of claim 10, wherein said damping mechanism includes a piston.

12. The variable orifice insert of claim 10, wherein said damping mechanism includes a spring.

13. The variable orifice insert of claim 6, wherein said flow-impeding element is disposed within the sprinkler.

14. The variable orifice insert of claim 6, wherein a longitudinal cross-section of said flow-impeding element narrows as a function of a longitudinal distance from a base of said element.

15. The variable orifice insert of claim 6, wherein said flow-impeding element is anchored to the sprinkler.

16. The variable orifice insert of claim 6, wherein said flow-impeding element is anchored to an inner wall of a deflector of the sprinkler.

17. The variable orifice insert of claim 6, wherein said flow-impeding element includes a damping mechanism, said damping mechanism responsive to said water pressure.

18. The variable orifice insert of claim 14, wherein said damping mechanism includes at least one arm, said arm associated with said deflector, said arm for altering said longitudinal distance of said flow-impeding element.

19. The variable orifice insert of claim 18, wherein said damping mechanism further includes at least one spring, for damping a motion of said arm.

20. The variable orifice insert of claim 6, wherein said flow-impeding element is operatively connected to the automatic fire protection system, and includes at least one leaf disposed within said water flow-path, said leaf configured so as to decrease said cross-sectional area.

21. The variable orifice insert of claim 20, wherein said at least one leaf within said water flow-path is a plurality of leaves.

22. The variable orifice insert of claim 21, wherein said plurality of leaves shares a common base.

23. The variable orifice insert of claim 22, wherein said leaves are radial segments, said plurality of leaves designed and configured to move from an open configuration towards a closed configuration as a decreasing function of said water pressure, so as to reduce said cross-sectional area of said water flow-path.

24. The variable orifice insert of claim 6, wherein said flow-impeding element is self-adjusting, based on the water inlet pressure, so as to decrease said cross-sectional area of said water flow-path as a function of decreasing water pressure within said flow-path.